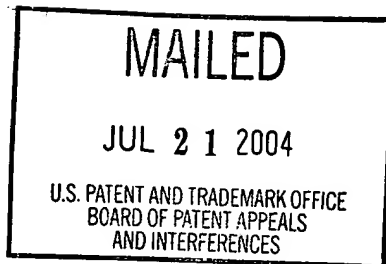


The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES



Ex parte PAUL TAT-KEUNG NG

Appeal No. 2004-1295  
Application No. 09/579,973

ON BRIEF

Before WARREN, WALTZ, and DELMENDO, Administrative Patent Judges.  
WALTZ, Administrative Patent Judge.

**DECISION ON APPEAL**

This is a decision on an appeal from the primary examiner's final rejection of claims 1, 7 through 14, 21 through 24, and 26 through 36.<sup>1</sup> The remaining claims pending in this application stand allowed (claims 15-20, 40 and 42-53) or objected to as depending on a rejected claim but would be allowable if rewritten in independent form with all intervening limitations (claims 2-6, 25, and 37-39). We have jurisdiction pursuant to 35 U.S.C. § 134.

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<sup>1</sup>The only amendment subsequent to the final rejection was an amendment filed concurrently with the Brief, correcting minor typographical errors (Brief, page 2). This amendment has been indicated as entered by the examiner (Answer, page 2, ¶(4)).

According to appellant, the invention is directed to a method and apparatus for starting a rope-start, two-stroke engine where the engine's firing sequence is enabled immediately upon determining the absolute rotational position of the engine but before determining the rotational direction of the engine, and the firing sequence is disabled if the engine is counter-rotating (Brief, pages 2-3).

Appellant states that the claims do not stand or fall together (Reply Brief, page 2) and provides reasonably specific, substantive reasons for the separate patentability of several claims (see the Brief and Reply Brief in their entirety). Accordingly, to the extent appellant has provided separate arguments, we consider these claims individually. See 37 CFR § 1.192(c)(7)(2000).

Representative independent claim 1 is reproduced below:

1. A method of starting a two-stroke engine comprising:

(A) manually driving a rotational component of the engine to rotate and provide power to a control system;

(B) determining an absolute rotational position of the component within a time as minimal as less than a single revolution of the engine after generating sufficient power to energize the control system;

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(C) enabling an engine firing sequence upon determining the absolute rotational position of the component to start the engine upon a single performance of step (A); then

(D) determining a rotational direction of the component based on continued monitoring of the rotation of the component; and then

(E) disabling the engine firing sequence if is determined in step (D) that the component is running in a reverse direction.

The examiner relies upon the following references as evidence of obviousness:

Tobinaga et al. (Tobinaga)	4,895,120	Jan. 23, 1990
Krueger	5,816,221	Oct. 06, 1998

Claims 1, 7-14, 21-24 and 26-36 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Krueger in view of Tobinaga (Answer, page 3, incorporating the rejection as stated in the final Office action dated Nov. 19, 2002, Paper No. 12). We *affirm* this rejection essentially for the reasons stated in the Answer and those reasons set forth below.

#### OPINION

The examiner finds that Krueger discloses an electronic engine control system for ignition and fuel injection in a rope-start engine without a battery (final Office action, Paper No. 12, page 2). The examiner recognizes that Krueger fails to disclose the determination of reverse running and the resultant disabling of the firing sequence in a two-stroke engine (*id.*). The examiner

applies Tobinaga for the teaching of determining reverse running with subsequent disabling of the firing sequence in a two-stroke engine to prevent damage to the engine (*id.*). From these findings, the examiner concludes that it would have been obvious to one of ordinary skill in this art to include a reverse running disabling feature, as taught by Tobinaga, in the electronic engine control system of Krueger "in order to provide an operative engine and to prevent damage to the engine." *Id.* We agree.

Appellant presents two principle arguments against the rejection on appeal. First appellant argues that there is no motivation to combine the references as proposed by the examiner, and that one of ordinary skill in this art would not consider a reference to an electric-start engine (Tobinaga) when solving the problems associated with a manual (rope) start engine (Krueger) (Brief, pages 5-6).

This argument is not persuasive. As noted by Tobinaga, and recognized by appellant (specification, page 3, ll. 10-15), accidental reversing of the engine in 2 cycle engines is a problem which should be avoided (col. 16, ll. 40-43). The examiner has established the motivation to modify the references, citing the teaching of Tobinaga that it is possible to prevent accidental reversing of the engine which is a problem in 2 cycle engines

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(Paper No. 12, page 2; Answer, page 7; Tobinaga, col 16, ll. 40-43). One of ordinary skill in this art would have reasonably recognized that the method of producing power to start the engine (i.e., a battery or a rope-start) would not have altered the reason or necessity to prevent accidental reversing of the engine as taught by Tobinaga (Answer, page 7). Accordingly, we determine that the examiner has established a proper motivation to combine the references as proposed in the rejection on appeal. See *In re Mayne*, 104 F.3d 1339, 1342, 41 USPQ2d 1451, 1454 (Fed. Cir. 1997).

Appellant's second argument is that, even assuming a proper motivation to combine the references, the references would not result in the claimed invention (Brief, page 6). As explained in great detail on pages 6-11 of the Brief, appellant argues that the claims explicitly permit reverse rotation since the engine begins firing before any rotational direction determination is made while Tobinaga clearly discloses that reverse running is prevented by a reverse prevention control.

This argument is also not persuasive. The examiner and appellant discuss their interpretations of col. 16, ll. 23-43, of Tobinaga (Brief, pages 10-11; Reply Brief, page 4; Answer, page 4). We agree with the examiner that Tobinaga suggests that an engine firing sequence is enabled before reverse rotation is determined

and the disabling is commenced (Answer, page 4). As taught by Tobinaga, the ignition timing means 30 makes a judgment as to whether the output pulses  $P_1$  to  $P_6$  from the pulser coils 32 corresponding to respective cylinders are in correct order (col. 16, ll. 28-31). If these output pulses are not in the correct order, the ignition timing means 30 operates not to transmit the ignition timings for *all* cylinders to the ignition signal generating means 31 and effects a misfiring control (col. 16, ll. 32-36, emphasis added). Accordingly, we agree with the examiner that at least partial spark plug firing occurs before reverse rotation is determined by the method of Tobinaga, i.e., at least some of the ignition timings for some cylinders are transmitted to the ignition signal generating means 31 until reverse rotation is determined, resulting in a misfiring control. Therefore we determine that Tobinaga would have suggested, to one of ordinary skill in this art, enabling the engine firing sequence before rotational direction is determined and disabling is commenced. We note that, contrary to appellant's argument (Reply Brief, page 3), the ignition timing means does not require a variety of inputs but has been programmed to be *selectively* responsive to a variety of input signals, which may include signals derived from pulser coils 32 (col. 5, ll. 27-37).

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With regard to appellant's argument concerning the rejection of independent claim 21 (Brief, pages 13-14), we agree with and adopt the examiner's response on page 5 of the Answer. Appellant has not pointed to any differences in *structure* in the claimed engine over the engine as disclosed by Krueger as modified by Tobinaga. See *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

With regard to claim 34, appellant presents the same arguments as discussed above with respect to claim 1 on appeal (Brief, pages 14-15). Accordingly, we reiterate our remarks from above and the Answer. Furthermore, appellant argues that, assuming *arguendo* that *prima facie* obviousness has been established, the examiner has not established that the "means" recited in the claims are the "equivalents" of the means of the applied references under a claim construction in accordance with 35 U.S.C. § 112, ¶6 (Brief, pages 15-16). This argument is not persuasive since the examiner has established that the various "means" disclosed by Tobinaga perform the same function as the "means" recited in claim 34, some means having the same structure while other means would have been recognized as interchangeable by one of ordinary skill in this art (Answer, page 6). See *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 1316, 50 USPQ2d 1161, 1165 (Fed. Cir. 1999).

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For the foregoing reasons and those stated in the Answer, we determine that the examiner has established a *prima facie* case of obviousness in view of the reference evidence. Based on the totality of the record, including due consideration of appellant's arguments, we determine that the preponderance of evidence weighs most heavily in favor of obviousness within the meaning of section 103(a). Accordingly, we affirm the examiner's rejection of the claims on appeal under 35 U.S.C. § 103(a) over Krueger in view of Tobinaga.

#### **OTHER ISSUES**


Upon the return of this application to the jurisdiction of the examiner, the examiner and appellant should determine whether the statements in the specification under "BACKGROUND OF THE INVENTION" concerning the typical determination of the engine's absolute rotational position and rotational direction by use of "indicator" markers and "indexing" markers constitute admitted prior art. If these statements constitute admitted prior art, then the examiner should reconsider the allowability of any pending claim which relies on these "indicator" and "indexing" markers for patentability.



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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

**AFFIRMED**

  
CHARLES F. WARREN  
Administrative Patent Judge

THOMAS A. WALTZ  
Administrative Patent Judge

BOARD OF PATENT  
APPEALS  
AND  
INTERFERENCES

  
ROMULO H. DELMENDO  
Administrative Patent Judge

TAW/jrg

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